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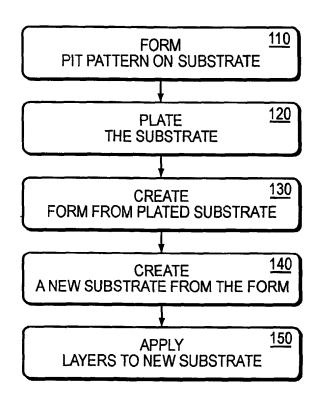
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(54) Title: FABRICATION OF SEMICONDUCTOR DEVICES



(57) Abstract: Fabrication of microelectronic devices is accomplished using a substrate having a recessed pattern. In one approach, a master form is used to replicate a substrate having a pit pattern. In another approach, the substrate is produced by etching. A series of stacked layers having desired electrical characteristics is applied to the substrate and planarized in a manner that creates electrical devices and connections therebetween. The microelectronic devices can include a series of row and columns and are uesd to store data at their intersection.



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PCT/US 01/30296 A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H01L27/24 H01L21/02 B29C59/02 B81C1/00 According to International Patent Classification (IPC) or to both national classification and IPC **B. FIELDS SEARCHED** Minimum documentation searched (classification system followed by classification symbols) IPC 7 H01L B81C Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X PATENT ABSTRACTS OF JAPAN 1-4,26vol. 2000, no. 02, 29 February 2000 (2000-02-29) -& JP 11 305055 A (SHARP CORP), 5 November 1999 (1999-11-05) abstract; figure 1 χ US 6 117 720 A (HARSHFIELD STEVEN T) 12-25, 12 September 2000 (2000-09-12) 27,28 figures 1-8 column 3, line 29 -column 5, line 21 X PATENT ABSTRACTS OF JAPAN 1-3,11,vol. 1995, no. 06, 21,26 31 July 1995 (1995-07-31) -& JP 07 066438 A (TONEN CORP), 10 March 1995 (1995-03-10) abstract; figures 1-4 -/--

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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Polesello, P

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PCT/US 01/30296

		PC1/US 01/30296						
C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT								
Category °	Citation of document, with indication, where appropriate, of the relevant passages	1	Relevant to claim No.					
A	US 5 834 324 A (NAKAMOTO MASAYUKI) 10 November 1998 (1998-11-10) figures 1-6 column 2, line 18 - line 64 column 3, line 46 -column 12, line 5		1-4,11, 18,19, 21,25, 26,28					
A	column 3, line 46 -column 12, line 5 US 6 118 135 A (GONZALEZ FERNANDO ET AL) 12 September 2000 (2000-09-12) figures 1-23 column 4, line 56 -column 19, line 6		12-25, 27,28					

INTERNATIONAL SEARCH REPORT

Int onal Application No PCT/US 01/30296

Patent doo cited in sear		Publication date	ć	Patent family member(s)		Publication date
JP 1130	5 0 55 A	05-11-1999	NONE			
US 6117	720 A	12-09-2000	NONE			
JP 0706	5438 A	10-03-1995	NONE			
US 5834	324 A	10-11-1998	JP US	10092301 5962958		10-04-1998 05-10-1999
US 6118	135 A	12-09-2000	US US AU DE DE EP JP KR WO	5831276 5841150 5985698 6048896 69614545 0835527 10511814 253029	A B A B A B D1 B T2 7 A1 H T B B1	03-11-1998 24-11-1998 16-11-1999 30-12-1996 20-09-2001 23-05-2002 15-04-1998 10-11-1998 15-04-2000 19-12-1996